terranean the chances are that they would be swept away * * *, *and hence they are retained* (italics ours) until nearly ready for attachment to the rocks." This seems to be a direct transposition of cause and effect and credits the lowly sponge with an amount of reasoning power and a degree of intelligence that few have suspected it to possess. Why would it not have been quite as accurate and decidedly less confusing to have said that, while we do not *know*, it seems probable that in the first case we have the normal condition of affairs, while in the second there has been an elimination of those sponges whose young were turned loose into a cold world at too tender an age?

These are merely one or two examples, the first that came to hand, of a very prevalent style of writing, but they serve as typical examples of a familiar class. Such statements as these are made with a view of popularizing science by making it pleasant reading, but it may be questioned if this mode of writing does not merely fail of producing its intended effect, but creates an entirely erroneous impression in the minds of the non-scientific reader for whom it is meant. Does it not teach that evolution is not a passive but an active process, and subtly lead him to think that not only the higher, but the lower animals, even the plants, pass many anxious moments considering what they may do for the benefit of posterity? Sooner than leave such an impression as this it would seem best to cease 'humanizing the birds.'

F. A. LUCAS.

NOTES ON INORGANIC CHEMISTRY.

IN the last number of *Nature*, W. A. Shenstone and H. C. Lacell, of Clifton College, contribute an interesting paper on working silica in the oxy-gas blow-pipe flame. While Gaudin had observed the elasticity of fine threads of vitreous silica as early as 1839, it was not till Professor C. V. Boys rediscovered the valuable qualities of 'quartz threads' in 1887 that the working of silica in the blow-pipe flame became practical. The authors have done much work with silica which is described in the paper. They find it possible to make thermometer tubes of silica and express the view that the only limit in its application is the matter of expense. They note in conclusion certain properties: It is harder than feldspar, but less hard than chalcedony, and its surface appears equally hard, whether cooled rapidly or slowly; the cold vitreous silica can be plunged safely into the hottest part of the oxy-gas flame, and thick rods and tubes of silica can be heated till plastic and then plunged into cool water without injury; vitreous silica is a very poor conductor of heat and hence it is possible to hold a thick rod of silica very close to a strongly ignited zone. Great developments in chemical and physical laboratories may be expected when it becomes possible to use apparatus of silica, which, in addition to possessing an extreme resistance, will endure the greatest and most rapid variations of temperature.

IN a paper read before the Royal Society of Dublin, by James Holmes Pollok, a new deposit of kieselguhr is described as occurring in County Antrim, along both banks of the Lower Bann from Toome Bridge, where the river emerges from Lough Neagh, down to Coleraine at its mouth. The deposit rests on peat and is only covered by vegetation. In places it is four feet in thickness. After drying in the sun, the material is pure white, porous and very light, the specific gravity of the mass being only 0.5422. The deposit is probably now being augmented when the river overflows its banks, and is largely composed of cubical diatoms from Lough Neagh.

A PAPER in the *Zeitschrift für anorganische Chemie*, by W. Hempel and v. Haasy, on amorphous silicon brings out several new facts in an old subject. By the action of sodium on the fluorid of silicon and subsequent fusion of the powdered mass with aluminum, a very active form of amorphous silicon is obtained on dissolving out the aluminum. This silicon burns very readily when heated gently in the air. Heated in chlorin it gives easily silicon chlorid. By direct union with sulfur, silicon disulfid is formed, which is purified by sublimation, forming long white needles, similar to the product described by Sabatier as being formed by heating silicon in a current of hydrogen sulfid. On fusion with sodium sulfid, sodium metathiosilicate Na_2SiS_3, is formed corresponding to so-

dium thiocarbonate. When treated with chlorin the chlorids of sulfur and silicon are formed and this reaction is used by the authors to detect thiosilicates in natural and artificial silicates. Thus they find 0.007 per cent. of SiS_2 in Vesuvius lava, up to 0.1 per cent. in different blast furnace slags, and 0.174 per cent. in ultramarine. They suggest that the sulfur in many sulfur springs may be due to the decomposition of thiosilicates.

THE last *Chemical News* contains the translation of a paper on krypton, communicated to the Berlin Academy by Professor Ludenburg and Professor Kruegel, of Breslau. Availing themselves of the possibility of obtaining larger quantities of liquid air, they examined the residue of 850 liters. These liters of this liquid residue gave 2300 liters of gas which was freed from oxygen and nitrogen. The final residue of 3.5 liters of gas was condensed in liquid air and then fractioned. The earlier fractions were chiefly argon, though even the second of the six fractions showed clearly the green krypton line. After the fifth fraction was boiled off there remained a crystalline residue melting at about —147°. The gas in this fraction proved to be nearly pure krypton, though some argon lines were present in the spectrum. Ramsay had suggested for krypton the density of 80–82, but two determinations with Ladenburg's krypton gave 58.67 and 58.81, using about 16 c.c. of the gas which had been crystallized. The authors suggest for the inert gases a position before Group I. as follows: Helium = 4 before lithium, neon = 20 before sodium, argon = 39 before potassium, and finally krypton = 59 before copper. The authors are continuing their researches which promise interesting results.

J. L. H.

CURRENT NOTES ON PHYSIOGRAPHY.

THE DIVERSION OF THE YELLOWSTONE.

THE questions raised by the unequal development of different parts of the Yellowstone drainage system within the National Park, as shown upon the topographic maps of the U. S. Geological Survey (see SCIENCE, V., 1897., 577), are answered by J. P. Goode in an article on 'The Piracy of the Yellowstone' (*Journ. Geol.*, vii, 1899, 261–271). It is there explained that the postglacial discharge of Yellowstone lake, when it stood about 200 feet higher than to-day, was orignally southwestward through a deep notch between Overlook and Channel mountains to the head of Snake river. The lower part of the canyon by which the lake is now discharged northward was then like its several neighbors in the rhyolite plateau, occupied by an active stream whose length was increasing by headward erosion. More favored than its fellows, this stream happened to gnaw through the divide that previously enclosed the lake basin and thus the waters of the lake were diverted to a northward discharge. The canyon was rapidly deepened, and the former outlet to the Snake river was abandoned. To-day the floor of the old outlet is poorly drained; puny streams start on its marshy course and flow to the opposite oceans. The falls in the new canyon are ascribed to the resistance of an undecomposed portion of rhyolite, on which the erosion of the river is retarded.

This essay does not explain the origin of the deep channel by which the lake was discharged to Snake river. The mountains in which the channel was cut seem to have been originally much higher than the divide through which the Yellowstone canyon has recently been eroded. On this point we may have fuller details in the expected Survey monograph on the Yellowstone Park.

MILL ON SOUTHWEST SUSSEX.

DR. H. R. MILL, librarian of the Royal Geographical Society of London, proposed several years ago that a detailed geographical description should be prepared for the sheets of the one-inch English ordnance survey (see SCIENCE, III., 1896, 799). He has now made a first contribution to the scheme in 'A Fragment of the Geography of England: Southwest Sussex' (*Geogr. Journ.*, xv, 1900, 205–227, 353–373), a compendious account of the various features of that interesting district. The essay and its illustrations are excellent in many respects, and called forth deserved praise when presented at a meeting of the Society; but the pages that are concerned with physiography leave something to be desired, inasmuch as they do not cover their subject broadly or uniformly. The